

SECTION 23 8125

COMPUTER ROOM AIR CONDITIONERS - CEILING MOUNTED

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Air conditioning units.
- B. Controls.

1.02 RELATED REQUIREMENTS

- A. Section 22 3000 - Plumbing Equipment: Cooling condensate removal pumps.
- B. Section 23 0913 - Instrumentation and Control Devices for HVAC: Placement of wall mounted thermostat.
- C. Section 26 0583 - Wiring Connections: Electrical characteristics and wiring connections.

1.03 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturers literature and data indicating water, drain, and electrical characteristics and connection requirements.
- C. Manufacturer's Instructions: Indicate procedures required for rigging and making service connections.
- D. Manufacturer's Field Reports: Indicate conditions at initial start-up including date, and initial set points.
- E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data.
- F. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.05 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide a five year warranty to include coverage for refrigeration compressor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Liebert, a brand of Vertiv Co; _____: www.vertivco.com/#sle.
- B. Mitsubishi.

2.02 PERFORMANCE REQUIREMENTS

- A. Cooling:
 - 1. Capacity: _____ Btu/hr.
 - 2. Air Flow: _____ cfm.
 - 3. Air Entering Evaporator: _____ degrees F DB and _____ degrees F WB.
 - 4. Air Leaving Evaporator: _____ degrees F DB and _____ degrees F WB.
 - 5. Evaporator Fan Motor: _____ hp.
- B. Water Cooled:
 - 1. Water Flow: _____ gpm.
 - 2. Entering Condenser Water: _____ degrees F.

3. Condenser Fan Motor: ____ hp.
- C. Air Cooled:
 1. Entering Air: ____ degrees F.
 2. Condenser Fan Motors: ____ hp.
- D. Reheat Capacity: ____ Btuh.
- E. Humidifier:
 1. Total Capacity: ____ lb/hr.
 2. Input: ____ W.
- F. Electrical Characteristics:
 1. ____ kW, ____ rated load amperes.
 2. ____ volts, single phase, 60 Hz.
 3. ____ amperes maximum fuse size.
- G. Disconnect Switch: Factory mount disconnect switch in control panel.

2.03 AIR CONDITIONING UNITS

- A. Description: Self contained air cooled, factory assembled, pre-wired and pre-piped unit, consisting of cabinet, fan, filters, humidifier, controls. To be installed in all IS rooms and closets.
- B. Assembly: For horizontal ceiling mounting to fit 24 by 48 inches T-bar ceiling opening.
- C. Energy Efficiency:
 1. Water -Cooled Unit Capacity: Less than or equal to 17 kBtu/h:
 - a. Energy Efficiency Ratio: 12.1.
 2. Water-Cooled Unit Capacity: Greater than or equal to 17 kBtu/h and less than 65 kBtu/h:
 - a. Energy Efficiency Ratio: 12.1.
 - b. Coefficient of Performance: 3.35.
 3. Water -Cooled Unit Capacity: Greater than or equal to 65 kBtu/h and less than 135 kBtu/h:
 - a. Energy Efficiency Ratio: 11.5.
 - b. Coefficient of Performance: 3.37
 4. Water -Cooled Unit Capacity: Greater than or equal to 135 kBtu/h and less than 240 kBtu/h:
 - a. Energy Efficiency Ratio: 9.6.
 - b. Coefficient of Performance: 3.22
- D. Cabinet: 10 gage, 0.1345 inch welded steel with baked enamel finish, and lined with 1/2 inch thick acoustic duct liner.
- E. Evaporator Fan: Forward curved centrifugal, directly driven by two speed motor.
- F. Compressor: Hermetic with resilient suspension system, oil strainer, internal motor overload protection, low pressure switch, manual reset high pressure switch.
- G. Evaporator Coil: Direct expansion cooling coil of seamless copper tubes expanded into aluminum fins, with thermal expansion valve with external equalizer, liquid line filter-drier, service shut-off valves and charging valves. Mount coil assembly in stainless steel drain pan.
- H. Water (Glycol) Cooled Condenser: Coaxial counterflow tube-in-tube type with liquid line stop valve and head pressure actuated water regulating valve, sized for rated capacity with ____ gpm water entering at ____ degrees F.
- I. Filter: 1 inch thick disposable glass fiber media.
- J. Electrode Steam Type Humidifier: Self contained type with replaceable cylinder, microprocessor controlled.

2.04 CONTROL SYSTEM

- A. Cooler: Corrosion resistant cabinet with copper tube aluminum fin coil, direct drive propeller fan with fan guards permanently lubricated ball bearing, single phase ____ hp fan motors with internal overload protection.

- B. Pump: In-line type centrifugal pump with mechanical seal, ____ hp motor, ____ volt, single phase, 60 Hz.
- C. Unit Mounted: Main fan contactor, compressor and condenser fan contactor, compressor start capacitor, controls transformer with circuit breaker, solid state temperature and humidity control modules, humidity contactor, time delay relay, reheat contactor, and high temperature thermostat.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that ceiling system is ready to receive work and opening dimensions are as indicated on shop drawings.
- B. Verify that electric power is available and of the correct characteristics.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Coordinate installation of air conditioning unit with computer room ceiling installer.
- C. Provide adequate drainage connections for water cooled units.
- D. Provide shut-off valves in condenser water inlet and outlet piping on water cooled units.

3.03 SYSTEM STARTUP

- A. Set initial temperature and humidity set points. Instruct operating personnel.

3.04 SCHEDULES

- A. Drawing Code:
 - 1. Location:
 - 2. Manufacturer:
 - 3. Model Number:
 - 4. Cooling Capacity:
 - a. Total:
 - b. Sensible:
 - c. Room DB Temperature:
 - d. Room WB Temperature:
 - e. Air Flow:
 - f. Fan Motor Size:
 - 5. Condenser:
 - a. Water Flow:
 - b. Water Temperature:
 - c. Ambient Air Temperature:
 - d. Fan Motor Size:
 - 6. Reheat:
 - a. Capacity:
 - 7. Humidifier:
 - a. Capacity:
 - b. Power Input:
 - 8. Power Volt/Phase/Cycle:

END OF SECTION 23 8125

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